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"BUMPER BUDDY" HUMVEE TRANSPORTER DATA PACKAGE INSTALLATION GUIDE AND DRAWINGS

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| The intent of this document is to provide the reader with instructions on installation of the "Bumper Buddy" | | | | | | | |
| Humvee Transporter and drawings as a collective data package. | | | | | | | |
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| Bumper Buddy, Humvee, ANDROS MARK VI, ramp, HHV, up armored, UA-HHV, HMMWV, robot transporter | | | | | | | |
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BUMPER BUDDY

The Bumper Buddy robot transporter was accomplished by the Air Force Research Laboratory (AFRL) at the urgent request of Central Air Forces and Headquarters Air Combat Command for Explosives Ordnance Disposal (EOD) personnel to transport and haul robots instead of using a trailer. The bumper mount and ramp allow deployed forces to carry small robots such as the Andros Mark VI Robot on the rear of armored Humvees. The Bumper Buddy was transitioned to Operation Iraqi Freedom troops for field use.

BUMPER BUDDY

Robotic Transporter Installation Guide

For the Up-Armored HHV (Heavy Hummer Variant) Vehicle with a 2-in x 8-in Bumper



Tools required for first assembly and installation: Two 3/4-in wrenches, one 9/16-in wrench Tools required for reinstallation: Two 3/4-in wrenches

Note: Two 3/4-in and One 9/16-in wrenches are supplied with each transporter.

NOTE: An ANDROS MARK VI with wheels was used for this guide, however, the transporter can be used for any robot under 500 lb that fits securely.

Installation



STEP 1: Bolt platform tube to bumper. Make sure the winch umbilical connector is functional. REQUIRED: Two 3/4-in wrenches



STEP 2: Remove safety retainer pins. This will be from a total of three places.



STEP 3: Making sure the ramp is on the passenger side, slide the first platform all the way on the tube. Insert the safety retainer pin in the hole nearest the bumper. Slide the platform back so it just hits the safety retainer pin. Tighten the four bolts under the platform that secure the platform to the tube

REQUIRED: 9/16-in wrench

NOTE: The safety retainer pin is used for both location and keeping the ramp from sliding off the tube should the bolts become loose.



STEP 4: Slide the second platform all the way to the first platform. If you are transporting an ANDROS MARK VI with wheels, insert a safety retainer pin in the second hole from the bumper and slide the platform back so it just hits the safety retainer pin. Otherwise, adjust the spacing between the platforms for the specific vehicle. Tighten the four bolts under the platform that secure the platform to the tube.

REQUIRED: 9/16-in wrench



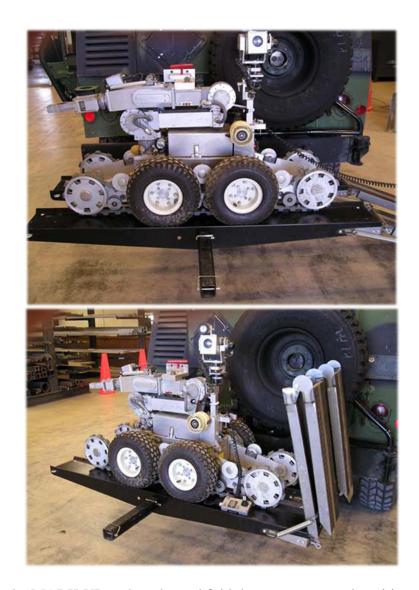
STEP 5: Insert safety retainer pin in hole at the end of the tube. This will keep the platform from sliding off if the bolts should become loose.



STEP 6: Remove the hinge pin from the platform and insert between the platform and ramp. Secure with a retainer clip.



STEP 7: Lower the ramps and load the vehicle.



STEP 8: Center the MARK VI on the tube and fold the ramps to travel position.



STEP 9: Secure the arm with a bungee cord. This helps reduce damage to arm when transporting.



STEP 10: Strap the robot to the platform as shown.

NOTE: Follow this method explicitly as testing indicated this is the most secure and least damaging method.



STEP 11: Make sure the straps do not go over the arm. The arm may be damaged by excessive loads.



STEP 12: Place cover over the robot and secure with bungee cords.

Removal



STEP 1: Remove the transporter by removing the tube bolts and sliding off bumper.



STEP 2: Reinstall tube bolts to prevent them from being lost.

